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CYCLES OF STRIKES

There are two aspects to economic dynamics: one, the rhythmic movements of the business cycle; the other, economic evolution. The relation between economic evolution and the increasing tendency toward industrial strife has a voluminous literature. It is the purpose of this article to point out the effect of the cyclical movements of industry on strikes.

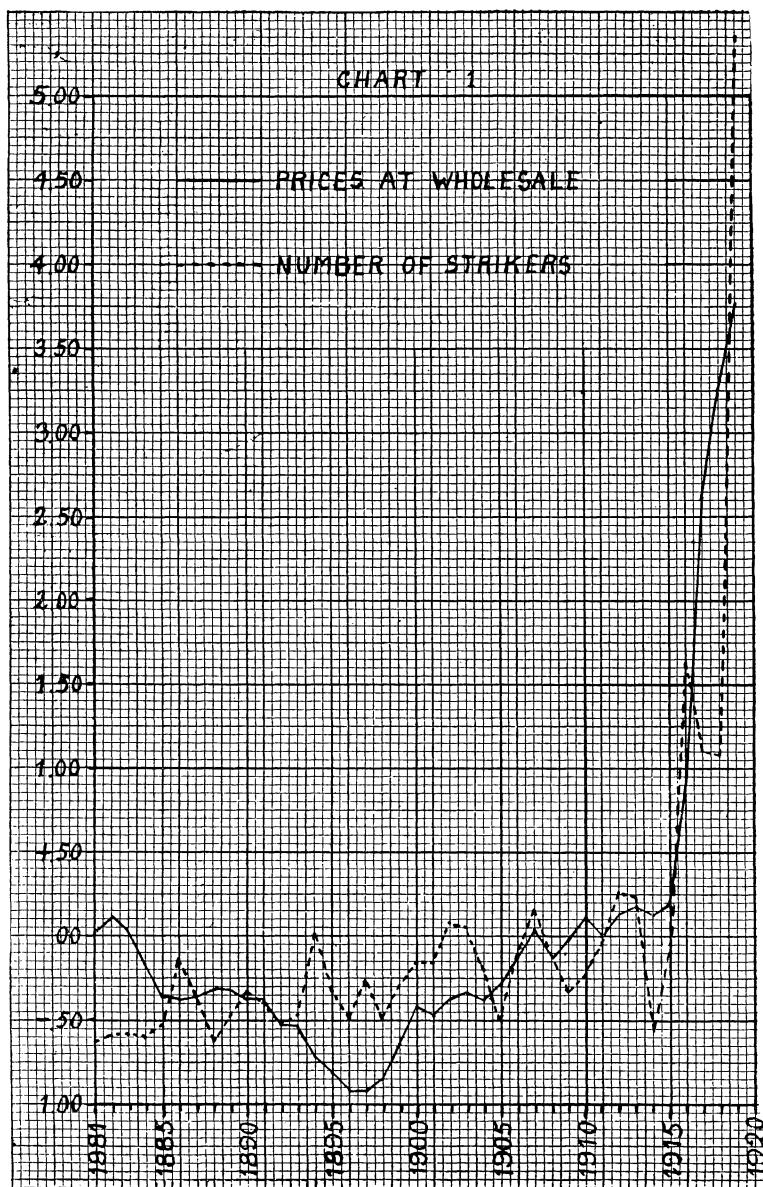
This study covers the period 1881-1919. The strike data for the years 1881-1905 were taken from the *Twenty-first Annual Report of the Commissioner of Labor*. No general strike statistics are available for the United States for the years 1906-1914, and for these years Canadian strike statistics were made use of to indicate the general movement of strikes. The figures for this period may be found in the *Labour Gazette*, February, 1917, p. 111. The Canadian figures are for the number of employees affected by both strikes and lockouts. In 1915 the Bureau of Labor Statistics began to publish data pertaining to strikes in the United States and has continued to do so since. The figures for the years 1915-1919 are taken from the *Monthly Labor Review* for April, 1916, April, 1917, and June, 1920.¹ In the first issue of the *Review* a limited amount of strike data are given for the year 1914 but no satisfactory figures are given for "number of strikers."

The price relatives used are the index numbers of the Aldrich report and of the Bureau of Labor Statistics.

The actual figures for the number of strikers for each year were reduced to index numbers by using the figures for 1901-1905 as the base. The nine year gap in the American figures was filled in with Canadian index numbers, the number of Canadian strikers for 1901-1905 being again used as the base. In this manner the Canadian relatives for the years 1906-1914 were adjusted to the American relatives. In order to compare the strike relatives with the price relatives the two sets of index numbers were reduced to a comparable basis by constructing new index numbers using for each series its standard deviation as the base. The resulting relatives are plotted in Chart 1 and the figures may be found in Table I.

Two types of movements may be observed from the chart, the long-run, secular movements and the short-run, cyclical movements. It will be noticed that the long-run, secular trends of the two curves move in opposite directions from 1881 to 1897. While the secular trend of the

¹ The figures for "number of strikers" for 1915-1919 are an understatement of the facts. The number of persons involved was reported for only 64 per cent of the strikes occurring in these years.



strike series is upward, the long-run trend of prices is downward. On the other hand from 1898 to 1919 the secular trends of the two curves are in the same direction. If now the short-run, cyclical fluctuations are observed, it becomes evident that the oscillations do not seem to correspond for the falling price period, while for the rising price period

the correspondence is considerable. This suggests that the comparison of the two series may be facilitated by splitting the period under consideration into two parts, one the period of falling prices from 1881 to 1897, the other the period of rising prices from 1898 to 1919.

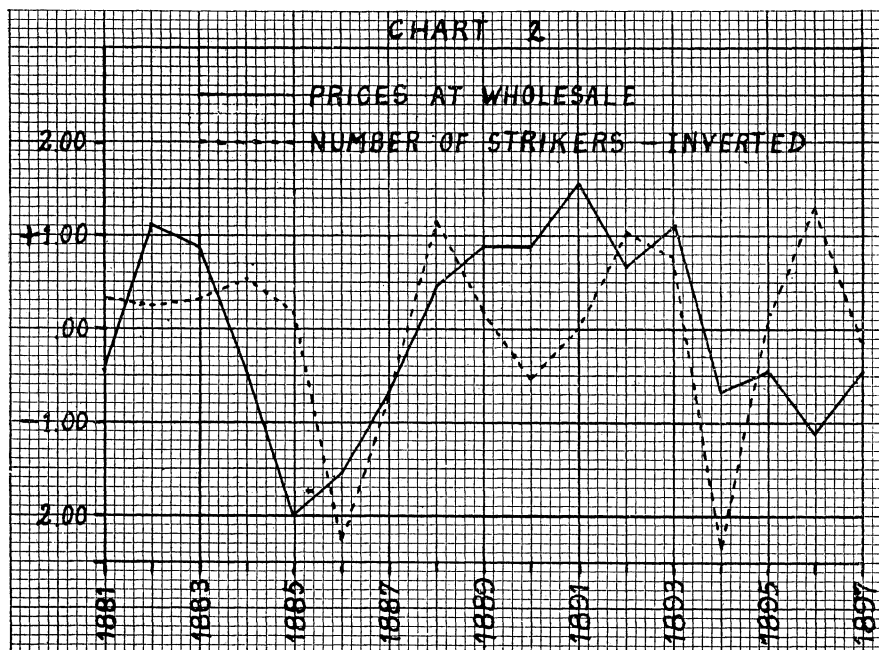
It may be assumed as a working hypothesis that the cyclical movement of strikes will not be the same in a period in which the secular trend of prices is downward as it is in a period in which the secular trend of prices is upward. In the period of long-run falling prices labor is on the defensive. A disproportionate part of the struggle of labor is directed against the reduction of wages, the lengthening of hours, and the worsening of conditions generally. With regard to wages, especially, labor is battling to hold what it has already gained. Now it is apparent that the greatest pressure in the direction of reduction of wages will be applied in periods of business depression. It therefore follows that in a period in which the secular trend of prices is downward the struggle between labor and capital may be expected to become most severe and the number of strikers greatest in the years of depression. It may be noted as a matter of fact that the percentage of strikes against reduction of wages was twice as great in the depression years of 1883-85 and 1893-97 as in the relatively prosperous years of 1881-82 and 1886-92.

On the other hand when the general trend of prices is upward we may expect to find labor becoming aggressive. Employers are no longer trying to reduce wages; they are endeavoring to prevent wage increases. Thus we find that the percentage of strikes against reduction of wages for the rising price years of 1899 to 1905 was less than one-fifth as great as the percentage of strikes against reduction in the depression years of the falling price period. When the general trend of prices is upward and the cost of living is mounting labor cannot afford to be satisfied with a defensive struggle to retain what it has already secured. It must take the offensive. The struggle between labor and capital now becomes most bitter in the years of prosperity. For this there are two reasons: first, it is in the prosperous years that prices and living costs rise; and second, the large profits accruing in years of prosperity give rise to a contest over its distribution.

If the foregoing hypothesis is correct we may expect: (1) that the fluctuations in the number of strikers will correlate inversely with the business cycle when the secular trend of prices is downward, (2) that the fluctuations in the number of strikers will correlate directly with the business cycle when the secular trend of prices is upward.

An effort was made to verify the above hypothesis. Consider first the period 1881-1897 during which the secular trend of prices was downward. In order to compare the cyclical fluctuations of strikes and

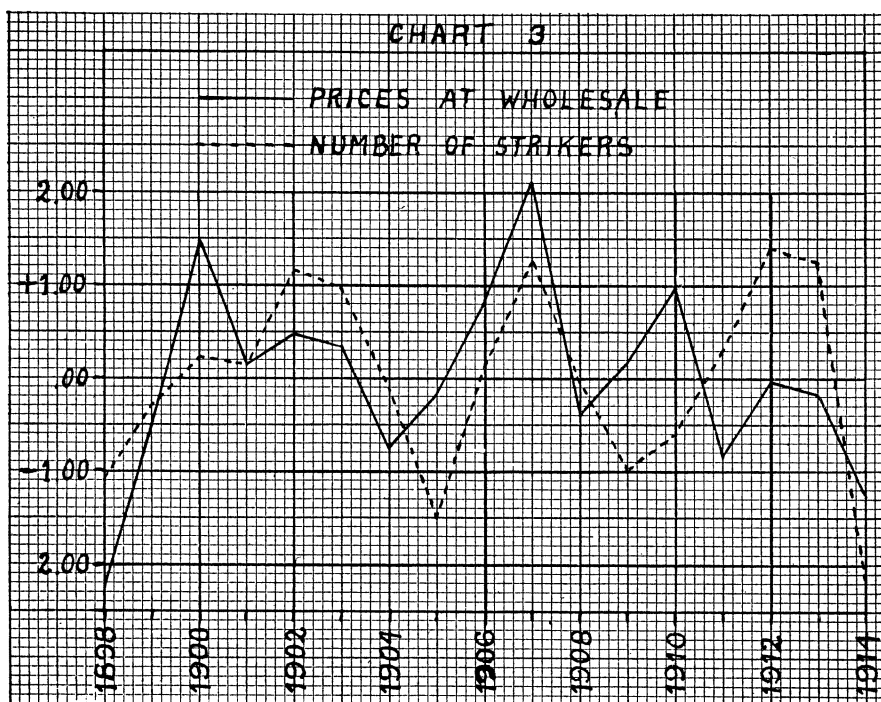
prices it was necessary to eliminate the secular trends. This was done by the method of moments. The resulting figures were thrown into relatives by using the standard deviations of each series as the base. The index numbers thus obtained may be found in Table I. The relatives are plotted together in Chart 2. It should be noted that the strike series is inverted.



The price series is assumed to be representative of the movements of the business cycle. What then is the relation between the oscillations of strikes and the fluctuations of prices and the business cycle? It will be observed that some correlation quite clearly obtains between the two series. The correlation is inverse since the signs have been reversed in plotting the strike series. To test the correlation further the Pearsonian coefficient was calculated. The coefficient is -0.338 . It must be admitted that this is not an entirely convincing coefficient. The evidence is sufficient, however, to point to the conclusion that in falling price periods strike movements tend to increase in periods of depression and to decrease in periods of prosperity.

Consider now the rising price period from 1898 to 1919. The tremendous increase in both prices and strike activity during the war years was of course abnormal. The period from 1898 to 1914 can therefore be analysed to greater advantage by itself, apart from the

war years. The secular trends for the curves were eliminated by finding the lines of regression by the method of moments. The resulting relatives were reduced to comparable figures by dividing the deviations from the average of each series by its respective standard deviation. The results are given in Table I and the curves are plotted in Chart 3. A considerable degree of direct correlation is evident. The Pearsonian coefficient is $+0.494$. The conclusion is further substantiated by the fact that the tremendous increase in prices and prosperity during the war years brought a corresponding increase in strike activity.



The hypothesis outlined above therefore appears to be borne out to a considerable extent by the facts. Strikes correlate inversely with the business cycle in periods of long-run falling prices, while they correlate directly with the business cycle in periods of long-run rising prices.

TABLE I

	Price Relatives 1881-1919	Strike Relatives 1881-1919	Price Relatives 1881-1897	Strike Relatives 1881-1897	Price Relatives 1898-1914	Strike Relatives 1898-1914
1881	+ .02	— .61	— .44	— .32		
1882	+ .11	— .58	+1.11	— .25		
1883	+ .02	— .58	+ .89	— .32		
1884	— .17	— .58	— .44	— .53		
1885	— .36	— .52	—2.00	— .18		
1886	— .38	— .13	—1.56	+2.28		
1887	— .36	— .34	— .67	+ .74		
1888	— .32	— .61	+ .44	—1.16		
1889	— .32	— .45	+ .89	— .18		
1890	— .38	— .32	+ .89	+ .53		
1891	— .38	— .39	+1.56	.00		
1892	— .53	— .51	+ .67	—1.02		
1893	— .53	— .46	+1.11	— .77		
1894	— .72	+ .02	— .67	+2.35		
1895	— .81	— .32	— .44	— .07		
1896	— .92	— .48	—1.11	—1.30		
1897	— .92	— .25	— .44	+ .14		
1898	— .85	— .48			—2.24	—1.09
1899	— .64	— .29			— .50	— .31
1900	— .41	— .15			+1.47	+ .23
1901	— .47	— .15			+ .14	+ .15
1902	— .38	+ .10			+ .47	+1.15
1903	— .34	+ .06			+ .33	+ .96
1904	— .38	— .18			— .76	— .13
1905	— .28	— .49			— .19	—1.50
1906	— .13	— .10			+ .83	+ .14
1907	+ .04	+ .18			+2.10	+1.24
1908	— .13	— .11			— .40	— .04
1909	— .02	— .32			+ .17	— .98
1910	+ .11	— .22			+ .97	— .60
1911	.00	+ .01			— .85	+ .31
1912	+ .13	+ .27			— .05	+1.39
1913	+ .17	+ .25			— .19	+1.23
1914	+ .13	— .55			—1.27	—2.17
1915	+ .19	— .04				
1916	+ .94	+1.65				
1917	+2.61	+1.12				
1918	+3.25	+1.10				
1919	+3.76	+5.39				

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